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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,920	01/24/2002	Mark Roh	010450	3753

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QUALCOMM, INC
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EXAMINER	
CHO, HONG SOL	

ART UNIT	PAPER NUMBER
2616	

DATE MAILED: 05/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/056,920	ROH ET AL.	
	Examiner	Art Unit	
	Hong Cho	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 January 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-86* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,11-23,25-31,34-37,41-47,51-57,61-73,75-81 and 84-86* is/are rejected.

7)☒ Claim(s) *8-10,24,32,33,38-40,48-50,58-60,74,82 and 83* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 August 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informality:

The Applicant is required to provide a serial number and the status (if patented or abandoned) of the application cited on page 1 and to remove the attorney docket number on the same page.

Claim Objections

2. Claim 78 is objected to because of the following informality:

Re claim 78, it depends on itself.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(e) that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-5, 11-14, 16-23, 51-55, 61-64 and 66-73, are rejected under 35 U.S.C. 102(e) as being anticipated by Brunner et al (U.S 6567462), hereinafter referred to as Brunner.

Re claims 1, 14, 51 and 64, Brunner discloses recovering data symbols (*embedded signal*) from received radio signal (*a first signal*) (*searching for an embedded signal in a first signal*, column 8, lines 1-4). Brunner discloses correlating a received signal (*a first signal*) with a user data spreading codes (*a second signal*) (*producing a plurality of first correlated values from a portion of the first signal and a second signal*, column 10, lines 17-22), outputting correlated samples (*a plurality of first correlated values)* to a discrete Fourier transformer (*transforming the first correlated values into a plurality of second correlation values related to a frequency content of the first correlation values*, column 12, lines 34-38) and recovering data symbols by using the outputs (*second correlated values)* of the discrete Fourier transformer (*searching for the embedded signal by evaluating the second correlation values*, column 9, lines 58-67).

Re claim 14, Brunner inherently discloses determining correlating values by correlating a first signal with a second signal by using chip duration and number of chips within the correlation window (*correlating the first signal with a second signal by adjusting a phase of the first signal with respect to the second signal*, column 10, lines 59-67).

Re claims 2, 16, 52 and 66, Brunner discloses the embedding signal comprising a pilot signal (figure 3b, element 30).

Re claims 3, 17, 53 and 67, Brunner inherently discloses receiving a spread pilot signal (*a pilot signal spread by a code*) and correlating with a user data spreading codes (*a second signal comprising a replica of the code*, column 7, lines 64-66).

Re claims 4, 18, 54 and 68, Brunner inherently discloses the code comprising a pseudo-random code.

Re claims 5 and 55, Brunner discloses the first and second signal comprising a plurality of chips (figure 3b).

Re claims 11-13, 19-21, 61-63 and 69-71, Brunner discloses the frequency device being a discrete Fourier transformer or a fast transformer (column 4, lines 24-23).

Re claims 22 and 72, Brunner inherently discloses first correlation values with one frequency components and second correlation values with another frequency components.

Re claims 23 and 73, Brunner discloses recovering data symbols by using the outputs (*second correlated values)* from the discrete Fourier transformer and applying the optimum weight vector to the data symbols (*selecting second correlation value with maximum magnitude*, column 9, lines 58-67).

Claims 25-31, 37, 41-43, 47, 75-81 and 86 are rejected under 35 U.S.C. 102(e) as being anticipated by Furukawa et al (U.S 6414985), hereinafter referred to as Furukawa.

Re claims 25, 37, 41, 47, 75, and 86, Furukawa discloses a detection circuit (*a searcher*, figure 4, element 18) comprising a correlator (figure 4, element 205) correlating received signals (*a first signal*) with pilot spreading codes (*a second signal*) (*a correlator configured to produce a plurality of first correlated values from first signal and second signals*), a transformer (*a processor*, figure 4, element 17) taking correlated samples (*a plurality of first correlated values)* from the correlator to produce outputs

(*second correlated values)* (*a processor configured to transformg the first correlated values into a plurality of second correlation values related to a different frequency component of the first signal*), and a detector (figure 4, element 170) to monitor the second correlation values over a time period and select one of the frequency components having a peak second correlation value (column 7, line 66 to column 8, line 8). Furukawa inherently discloses monitoring correlation values over a time period to select a peak correlation value.

Re claims 26, 42 and 76, Furukawa discloses a multiplier multiplying the first signal portion (I and Q signal) with the second signal (PN(I) and PN(Q) to produce a plurality of product values and a plurality of adders coherently combining different portions of the product values to produce a plurality of coherent sums each comprising one of the first correlation values.

Re claims 27, 28, 43, 77 and 78, Furukawa discloses a delay device with 64 chip delay (*a buffer with a shift register*, figure 6, element 70) providing a first signal to the multiplier (figure 6, element 80).

Re claims 29 and 79, Furukawa discloses a delay device with 64 chip delay (*a buffer with a shift register*, figure 6, element 70) providing a first signal to the multiplier (figure 6, element 80).

Re claims 30, 31, 80 and 81, Furukawa inherently discloses a delay device receiving chips and providing a chip to the multiplier.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 6 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brunner.

Re claims 6 and 56, Brunner discloses all of the limitations of the base claim, but fails to disclose the portion of the first signal and the second signal each comprising 96 chips. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the chip rate to be 96 for the matter of design choice.

Claims 7, 15, 57 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brunner in view of Furukawa.

Re claims 7, 15, 57 and 65, Brunner discloses all of the limitations of the base claim, but fails to disclose multiplying the first signal portion with the second signal to produce a plurality of product values, and coherently combining different portions of the product values to produce a plurality of coherent sums each comprising one of the first correlation values. Furukawa discloses multiplying the first signal portion (I and Q signal) with the second signal to produce a plurality of product values (figure 4, element 206) and coherently combining different portions of the product values to produce a

plurality of coherent sums each comprising one of the first correlation values (figure 4, element 206). It would have been obvious to one having ordinary skill in the art at the time the invention was made to implement correlating process of Furukawa for coherent detection of a pilot signal.

Claims 34-36, 44-46, 84 and 85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa in view of Brunner.

Re claims 34-36, 44-46, 84 and 85, Furukawa discloses all of the limitations of the base claim, but fails to disclose the processor being a discrete or fast Fourier transform. Brunner discloses the frequency device being a discrete Fourier transformer or a fast transformer (column 4, lines 24-23). It would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the orthogonal transformation function by fast Hadamard transform with fast Fourier transform since fast Fourier transform is commonly used technique for orthogonal transformation.

Allowable Subject Matter

7. Claims 8-10, 24, 32, 33, 38-40, 48-50, 58-60, 74, 82 and 83 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US Patent (6263010) to Naruse et al. discloses acquisition of synchronization of a pilot signal
- US Patent (5715236) to Gilhousen et al. discloses generating signals by using orthogonal PN codes

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong Cho whose telephone number is 571-272-3087. The examiner can normally be reached on Mon-Fri during 7 am to 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

hc

Hong Cho
Patent Examiner
5/4/06

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